Non-contact thermometry best done with *INFRATHERM* pyrometers

IMPAC Infrared GmbH
Temperature Measurement

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certified ISO 9001:2000 IMPAC Infrared

IS 12-AI

Aluminium pyrometer

Digital pyrometer for non-contact temperature measurement of aluminium between 350 and 1050°C (additional data sheet to IS 12)

- Pyrometer specially designed for measurements of aluminium
- 2 wide temperature ranges between 350 and 1050°C
- Spectral range: narrow band in the near infrared
- Short response time < 1.5 ms
- Small spot sizes
- Analog output 0 ... 20 mA or 4 ... 20 mA
- Digital interface RS232 or RS485
- Integrated maximum value storage
- Built-in digital display

The **IS 12-AI** is a development of the pyrometer IS 12, specially designed for the measurement of aluminium.
The robust die-cast housing with protection class IP65 is designed for the use in industrial environments.
The parameters of this digital instrument can be set directly via push buttons on the rear side of the instrument. The built-in digital display indicates the corresponding parameters or the actual temperature reading in measuring mode.
The instrument's parameters can also be adjusted via digital interface with the optional available portable parametrizing device HT 6000 or in combination with the PC software *InfraWin*. The software additionally allows the display and recording of temperature values graphically and numerically.
The **IS 12-AI** can be aligned exactly on the measuring object with the optimized thru-lens view finder with spot indication. For exact alignment of the measuring object the instruments are additionally equipped with a targeting light.

Typical applications:

- Aluminium extrusion
- Rolling
- Billet heating and other heating processes

IMPAC - Specialist in non-contact thermometry

Technical Data (different from IS 12)

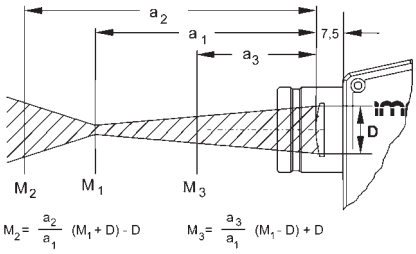
Response time t_{90}:	< 1.5 ms (with dynamical adaption at low signal levels) adjustable up to 10 s
Spectral range:	narrow band in the near infrared
Accuracy:	0.3% of measured value in °C + 1°C (ε = 1, t_{90} = 1 s, T_U = 15 ... 40°C, $T_M \geq 400$°C (MB 9), $T_M \geq 450$°C (MB 10.5))
Ambient temperature:	0 ... 70°C

Fixed optics:

Optics	Measuring distance a	Spot size M_{90} 350 ... 900°C
1-P	112 mm	2.2 mm
2-P	240 mm	4.4 mm
3-P	660 mm	10.5 mm
4-P	1300 mm	20 mm
5-P	5600 mm	86 mm
Aperture D:	26 mm	

Optics	Measuring distance a	Spot size M_{90} 400 ... 1050°C
1	80 mm	1.1 mm
2	160 mm	1.5 mm
3	250 mm	2.2 mm
4	660 mm	5.5 mm
5	1300 mm	11 mm
6	5600 mm	45 mm
Aperture D:	19 mm	

The **IS 12-AI** is supplied with one fixed optics shown in the table.
Select one optics corresponding to the required measuring distance of the application.
Spot sized differing from the stated values can be calculated with the following equations.



$M_2 = \frac{a_2}{a_1} (M_1 + D) - D$ $M_3 = \frac{a_3}{a_1} (M_1 - D) + D$

Reference number (specify an optics when ordering):

3 840 200	350 ... 900°C (MB 9) with view finder and targeting light
3 840 210	350 ... 900°C (MB 9) with view finder and targeting light and built-in scanner
3 840 220	400 ... 1050°C (MB 10.5) with view finder and targeting light
3 840 230	400 ... 1050°C (MB 10.5) with view finder and targeting light and built-in scanner

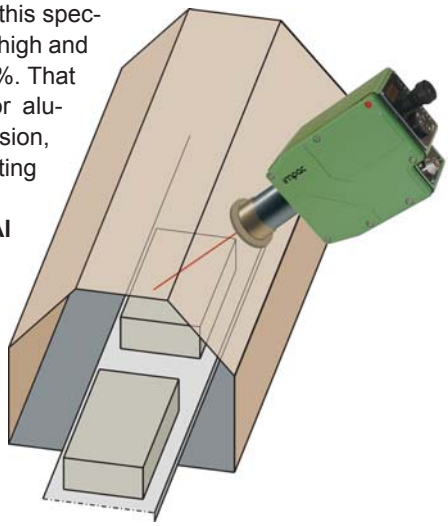
Scope of delivery: Instrument with one optics, works certificate and PC software *InfraWin*
Accessories please see data sheet IS 12

IMPAC 24 months Warranty

Application

IS 12-AI in aluminium extrusion process

The **IS 12-AI** is a special development of the well proven IS 10-AI for aluminium applications in temperature ranges between 350 and 1050°C.
Conventional pyrometers - even 2-colour pyrometers - are not able to measure the temperature of aluminium correctly due to the special physical properties of aluminium. To avoid the negative influence of these properties in the non-contact temperature measurement the **IS 12-AI** operates in a special spectral range. In this spectral range solid aluminium has a very high and stable emissivity between 30 and 43%. That is why the instrument is suitable for aluminium applications such as extrusion, rolling, billet heating and other heating processes.
Due to physical reasons the **IS 12-AI** is sensitive to light at the beginning of the temperature range. This sensitivity decreases with increasing temperature. In applications with low temperatures (at the start of the temperature range) the measuring area has to be screened against light to avoid its influence (see drawing).



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